

Exercise: Understanding threads

1. Introduction

If you have not studied computer science before, the changes are high, that you have not yet heard about “threads”. Threads are an important programming concept to speed-up computations by using the computation power of multiple processors.

Note: In this exercise no programming is demanded! Just try to get a project running and understand it.

2. Get the thread example running

Download the solution repository

<https://github.com/juebrauer/Solutions-Exercises-RealTimeSystems>

It contains a subfolder called “Threads” with a C++ project for a simple traffic sign recognition system. A test video of a short traffic sequence is contained in the test_videos subfolder of this project.

First try to get the project running. For this you will have to download the (prebuild) OpenCV library as well. All the project settings have already been set, but perhaps you have downloaded a newer version of OpenCV and you have to change the OpenCV version from 331 to another version number.

Some hints how to set the settings of a C++ project in order to link against the OpenCV library can be found here:

<https://github.com/juebrauer/Solutions-Exercises-Programming1/blob/master/SuperClaus/SuperClaus/Linking%20to%20OpenCV.txt>

Note that some of the .cpp files are excluded from build. Right-click on a .cpp file, goto “Properties->General->Excluded from build” and set it to No if you want to compile and run it.

3. Understanding threads

Try to understand how the program achieves to detect traffic signs. For what are “threads” used here in this project?